WHAT IS CLAIMED IS:

1. A method for identifying a product comprising:

a) providing a solid body fabricated from at least a molecularly imprinted polymer having molecular sized cavities adapted to selectively receive and bind molecules having a specific taggant molecular structure, said molecular sized cavities being disposed on at least a portion of an exterior surface of the body; and,

b) applying to the surface of the body a composition containing indicator molecules having a taggant moiety at one end having the taggant molecular structure and a marking functional group tethered to the taggant moiety by a molecular chain, said taggant moieties engaging and binding to the molecular sized cavities so as to mark the portion of the surface of the body with the indicator molecules bound thereto, said marking functional groups rendering the marked portion of the surface perceptible with or without detection instrumentation.

2. The method of claim 1, wherein the molecularly imprinted polymer is made in accordance with the steps of:

(a) providing a complex comprising a compound of the general formula L_3M wherein L is the same or different and is a β-diketone ligand containing the same or different chain transfer moiety and M is a lanthanide element;

(b) reacting the complex with a target analyte to provide an adduct containing the target analyte;

(c) co-polymerizing the adduct with a monomer and cross-linking agent to provide a polymer; and,

(d) removing the target analyte from the polymer to provide the molecularly imprinted polymer.

3. The method of claim 2, wherein the lanthanide element M is selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, promethium,

samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium.

4. The method of claim 2, wherein the ligands L_3 are each the same ligand.

5. The method of claim 2, wherein the β-diketone ligands have the structure:

$$R^1\text{-}C(O)\text{-}CR^2_2\text{-}C(O)\text{-}R^3$$

wherein R^1 is a hydrocarbon group having 1 to about 20 carbons containing a chain transfer moiety; R^2 can be the same or different and is hydrogen or a hydrocarbon group having from 1 to about 12 carbon atoms and R^3 is a straight or branched chain alkyl group of 1 to about 12 carbon atoms optionally containing one or more halogen atoms.

6. The method of claim 5, wherein $R^3$is an alkyl halide.

7. The method of claim 6, wherein the alkyl halide is $-CF_3$.

8. The method of claim 1, wherein the chain transfer moiety is selected from the group consisting of dithiocarboxylic ester, trithiocarbonate and benzyl iodide.

9. The method of claim 1, wherein the dithiocarboxylic ester is of the general formula -S-C(S)R wherein R is a hydrocarbon group having from 1 to about 20 carbon.

10. The method of claim 1, wherein the polymer is an epoxy resin.

11. The method of claim 1, wherein the marking functional group is a chromophore.

12. The method of claim 1, wherein the molecular chain comprises an alkylene group having the formula $-(CH_2)_n-$ wherein n is an integer of from 2 to about 24.

13. The method of claim 1, wherein the molecular sized cavities are provided on selected portion(s) of the exterior surface of the body in accordance with the following steps:

providing a solid body fabricated from molecularly imprinted polymer having taggant molecules complexed therein;

covering predetermined areas(s) of the surface of the body with a mask to provide unmasked portion(s) of selected size and configuration;

removing the taggant molecules from the selected unmasked portion(s); and,

removing the mask from the surface of the body.

14. The method of claim 13, wherein the selected unmasked portion(s) are configured as information conveying indicia.

15. The method of claim 13, further comprising the step of removing the composition containing the indicator molecules from the surface of the body, leaving the indicator molecules bound to and marking the selected portion(s) of the surface from which the taggant molecules have been removed, but not bound to the previously masked areas.

16. The method of claim 11, wherein the chromophore is visibly colored.

17. The method of claim 11, wherein the chromophore luminesces when illuminated with ultraviolet light or infrared light.

18. A product identification system comprising:

a) a package body fabricated from at least a star molecularly imprinted polymer having molecular sized cavities adapted to selectively receive and bind molecules having a specific taggant molecular structure, said molecular sized cavities being disposed on selected portions of an exterior surface of the body, said selected portions being configured in the form of information conveying indicia; and,

b) a developing composition for developing the selected portions as an image, said developing composition including indicator molecules having a taggant moiety at one end having the taggant molecular structure and a marking functional group tethered to the taggant moiety by a molecular chain, said taggant moieties engaging and binding to the molecular sized cavities so as to mark the portion of the surface of the body with the indicator molecules bound thereto, said marking functional groups rendering the marked portion of the surface perceptible with or without detection instrumentation.

19. The system of claim 18, wherein the polymer is an epoxy resin.

20. The system of claim 18, wherein the marking functional group is a chromophore.

21. The system of claim 20, wherein the chromophore is visibly colored.

22. The system of claim 20, wherein the chromophore luminesces when illuminated with ultraviolet light or infrared light and the system includes a light source.

23. The system of claim 18, wherein the molecular chain comprises an alkylene group having the formula $-(CH_2)_n-$ wherein n is an integer of from 2 to about 24.

24. The system of claim 18, wherein the molecularly imprinted polymer is made in accordance with the steps of:

(a) providing a complex comprising a compound of the general formula L_3M wherein L is the same or different and is a β-diketone ligand containing the same or different chain transfer moiety and M is a lanthanide element;

(b) reacting the complex with a target analyte to provide an adduct containing the target analyte;

(c) co-polymerizing the adduct with a monomer and cross-linking agent to provide a polymer; and,

(d) removing the target analyte from the polymer to provide the molecularly imprinted polymer.

25. The system of claim 24, wherein the lanthanide element M is selected from the group consisting of lanthanum, cerium, praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium.

26. The system of claim 24, wherein the ligands L_3 are each the same ligand.

27. The system of claim 24, wherein the β-diketone ligands have the structure:

$$R^1\text{-}C(O)\text{-}CR^2{}_2\text{-}C(O)\text{-}R^3$$

wherein R^1 is a hydrocarbon group having 1 to about 20 carbons containing a chain transfer moiety; R^2 can be the same or different and is hydrogen or a hydrocarbon group having from 1 to about 12 carbon atoms and R^3 is a straight or branched chain alkyl group of 1 to about 12 carbon atoms optionally containing one or more halogen atoms.

28. The system of claim 27, wherein $R^3$is an alkyl halide.

29. The system of claim 28, wherein the alkyl halide is $-CF_3$.

30. The system of claim 24, wherein the chain transfer moiety is selected from the group consisting of dithiocarboxylic ester, trithiocarbonate and benzyl iodide.

31. The system of claim 24, wherein the dithiocarboxylic ester is of the general formula -S-C(S)R wherein R is a hydrocarbon group having from 1 to about 20 carbon.